The Korean Intellectual Property Office (KR) Publication of Application (A)

H01J 15/00 (51) Int.Cl.

10-2000-0014545 (11) Publication No

2000-03-15 (43) Publication Date 10-1998-0034028 (21) Application No

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Examination Requested: Requested

(54) COMPOSITION OF BARRIER RIB FOR PLASMA DISPLAY PANEL WITH HIGH-BRIGHTNESS

Abstract

Machine Translation

plasma display panel prevents the deformation of a substrate and it improves the performance of the plasma which is comprised in order to have the high moldability at the low pressure. The mass rate of the plasticizer about the weight of a binder is less than 1. Accordingly, the composition of barrier rib for the high brightness display panel. Along with this it forms the partition having the high fineness, and the high aspect ratio (High-The present invention relates to the composition of barrier rib for the high brightness plasma display panel Ratio).

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Descritption

- · Brief explanation of the drawing
- Fig. 1 is a perspective view showing the plasma display panel according to prior art. 2
- Fig_2 is a drawing showing the manufacturing method of the plasma display panel according to a procedure according to the prior art.
- Fig. 3 is a drawing which shows in order to illustrate the composition of barrier rib according to the present invention.
- 5 <The description of reference numerals of the main elements in drawings>
- 6 2: address electrode 4: transparent electrode.
- 6: fluorescent substance 8,30,50: partition.
- 10: protective layer 12,18: dielectric layer.
- 9 14: bottom glass plane 16: upper glass board.
- **10** 20,40: green tape 22,42: substrate.
- 11 24,44: electrode 26,46: electrode protection layer.
- 12 28,48: mold.
- Details of the Invention
- Purpose of the Invention

The Technical Field)to, which the Invention Belongs, and the Prior Art in that Filed:

composition of barrier rib for the high brightness plasma display panel which is comprised in order to have the high The present invention relates to the composition of barrier rib of the plasma display panel, particularly, to the moldability at the low pressure. 5

- Display), the field emission display (it says to be "FED" less than the Field Emission Display) and plasma display unit it says to be "PDP" less than the Plasma Display Panel) etc. is actively developed. And these middle PDPs have the the simple structure, the superiority of the high luminescence efficiency and high brightness, and the point having the advantage of additionally implementing the large screen more than 40 inch with the simplicity of the manufacture by The flat screen display including a recent, the liquid crystal display (it says to be "LCD" less than the Liquid Crystal wide-viewing angle more than the memory function and 160, 4
- says to be "G" less than Green), and the fluorescent substance of the blue (it says to be "B" less than Blue) indicates a gas while being in the ionization, while repeating the atoms and collision of the gas, the secondary electron at this time dielectric thick film (18) and the fluorescent substance (6), which radiates it is excited to the plasma discharge with the gas sealed in the discharge cell or the Ne+Xe gas and the emission of the secondary electron occurs the atoms of the successively ionizes an atom. That is, the electronics and ion enter into the avalanche process increasing to the times. It is progressed via the protective film (10), and the upper dielectric thick film (12) and transparent electrode (4) as the upper glass board (16) and the light of the R,G,B in which the light generated in the avalanche process is light-emitted character or a graphic. In the meantime, the partition (8) is formed with the stripe shape and it divides each discharge This is described in more detail that, while the electronics emitted in an electrode collides with the atom of the He+Xe cell. Along with this it reflects the light light-emitted from the fluorescent substance (6) towards the upper glass board from the fluorescent substance while exciting and radiating the red (it says to be "R" less than the Red), the green (it predetermined driving voltage (for example, 200V) is applied as the address electrode (2) and transparent electrode electrode (2) and the down dielectric thick film (18), coated onto with the predetermined thickness on the top of the dielectric thick film (12), coated onto with the predetermined thickness on the top of the upper glass board (16) and (4), the plasma discharge occurs in the address electrode (2) inside the discharge cell with the emitted electronics. bottom glass plane (14) and the partition (8), which divides each discharge cell it is formed on the top of the down ransparent electrode (4) and the protective film (10) coated onto on the top of the thick dielectric film (12). If the generated light and the transparent electrode (4), formed on the top of the upper glass board (16) and the upper Referring to Fig. 1, the PDP according to prior art provides the bottom glass plane (14), setting up the address 15
- In the meantime, the partition applying PDP to the high definition display device had high resolution. Along with this the high aspect ratio (High-Ratio) was demanded. It meets this demand and the process is simplified. Along with this the LTCCM (it says to be "LTCCM" this less than the Low Temperature Cofired Ceramic on Metal) mode manufacturing the high resolution, and the partition of the high aspect ratio is proposed 16
- Referring to Fig. 2, the procedure of the barrier wall manufacturing method according to prior art is illustrated 17
- The green tape (Green Tape:20) is formed. (First step) After the green tape (20) manufactures the slurry, by using the 48

means the additive of the solvent, for dissolving the binder, sustaining the viscosity of the frit glass and the plasticizer, lape casting apparatus, it has the predetermined thickness and it forms the slurry. At this time, the slurry is formed by mixing the organic compound with the glass powder to the predetermined rate. In this case, the organic compound predetermined amount. The slurry is used as the tape casting dragon while maintaining the state of the liquid. The preventing the hardening of the slurry and has the predetermined flexibility and binder and plasticizer and green tape (20) formed owing to the process is illustrated in (a) of Fig. 2.

- which has the predetermined thickness (for example, 0.5 mill) after separating the green tape (34) from the tape casting The green tape (20) is laminated onto the substrate (22). (Second step) It is laminated on the top of the substrate (22) apparatus and it attaches. The glass, glass-ceramic, ceramics, a metal etc is used as the material of the substrate (22). Particularly, in case of the metal material, the titanium of 0.5 - 1 mm thickness is mainly used. At this time, is Illustrated in (b) laminated on the top of the substrate (22) of the green tape (20) edge drawing 2. 19
- (22) is injected in the printer (it is not illustrated) and an electrode is printed and it forms. At this time, the electrode (24) The electrode (24) is formed on the green tape (20). (The third step) The green tape (20) laminated on the substrate formed on the top of the green tape (20) is illustrated in (c) of Fig. 2. 20
- The electrode protection layer (26) is formed on the top of the electrode (24). (Fourth stage) The electrode protection layer (26) for protecting an electrode on the top of the electrode (24) is formed. At this time, the electrode protection ayer (26) formed on the top of the electrode (24) is illustrated in (d) of Fig. 2. 7
- morphology on the top of the substrate (22) is positioned, the predetermined pressure is added and the partition (30) is After the mold (28) of the barrier morphology is positioned on the top of the substrate (22), the predetermined pressure predetermined pressure is authorized by using a roller etc. At this time, the green tape (20) is moved with the pressure composition ratio of the green tape (20) and it authorizes the high pressure, this forms the partition of the bar in which (30) formed owing to the plasticity is illustrated in (f) of Fig. 2. As described above, in case of the high pressure being applied in the mold (28) to the barrier wall forming groove (28a) and it is shaped to the shape of a partition. In fact, in partition (30) in which a molding is finished is plasticized in the predetermined temperature. At this time, the partition authorized and forming a partition the deformation of a substrate is become with the Ga GeO crab and the problem a manufacturer intends. At this time, the process of molding is illustrated a partition in (e) of Fig. 2. Moreover, the hat the performance of PDP is lowered is drawn. As a result, the composition of barrier rib having the excellent is added and the partition (30) is formed. (Fifth step) After the mold (28) having the groove (28a) of the barrier the molding process, the pressure of 100kgf / cut is applied. Only when a hardening quickly goes on with the molded in the green tape (20). In this case, it has the mold (28) and substrate (22) interval the press, or the moldability is required in the low pressure. 22

Technical challenges of the Invention

- Therefore, an object of the present invention is to provide the composition of barrier rib for the high brightness plasma display panel which is comprised in order to have the high moldability at the low pressure. 23
- Structure & Operation of the Invention
- To accomplish the above objects, as to the composition of barrier rib for the high brightness plasma display panel, the mass rate of the plasticizer about the weight of a binder is less than 1. 24
- formed and the mold of the barrier morphology is pressed and a partition is formed. In this way, the partition which has powder_of_60_weight%, the-organic-vehicle-of-3-weight%, the-plasticizer_of:5-weight%, the solvent-of-3.1-weight%, and average diameter of a particle is 1-2/m is formed and a solvent, a plasticizer, and the organic vehicle and additive are The composition of barrier rib for the high brightness plasma display panel has the composition including the glass mixed with the powder to the determined ratio and it makes slurry and it is the tape casting and the slurry the green the additive of 7-weight%. If it illustrates for the manufacturing method of a partition, the glass powder in which the tape is formed. After the green tape is laminated onto a substrate, an electrode and electrode protection layer are the high fineness and high aspect ratio at the low pressure by using the manufactured green tape is formed 25
- The embodiment of the composition ratio of the partition for the high brightness plasma display panel is illustrated in below. But it announces that the scope of the present invention is not limited to above statement example. 26
- 27 Embodiment.
- the organic compound, a solvent, a plasticizer, and the organic vehicle and additive correspond to A composition and he inorganic material and organic compound) The inorganic material corresponds to under the mixture powder. As to composition ratio of a partition show up in the table 1) (The composition ratio in the table 1 has the weight of the glass) brightness plasma display panel and a method of manufacture thereof. The composition of a partition is divided into In the embodiment of the present invention, it decides to illustrate for the composition of the partition for the high as 100 weight% and it is calculated 28

Table 1

of a partition	
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ratio	
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and composition	
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Glass powder	Solvent	Sub-title
		owder

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Organic vehicle	:	Additive

In the meantime, the composition ratio of the organic compound composition of a partition shows up in the table 2. The composition ratio in the table 2 has the weight of the organic compound as 100 weight% and it is calculated.

Table 2

Composition	Composition	Composition ratio (weight%)	
Solvent	20 - 00	1 1 2 1	
Sub-title	,1 - 30		
Binder	0.5 - 30 ()	- 7	
Additive	0.1 - 10		

the weight ratio of a plasticizer maintains the range of 0.3 - 1. Is a moldability. In the meantime, in the composition ratio of the table 2, it improves the moldability of a partition but a binder is desirable to sustain the range of 3 - 7 weight%. A which is not easily hardened and has the fixed softness and it has the high moldability in the low pressure. At this time, included. Accordingly, the composition of barrier rib sustains the fixed viscosity. Along with this it forms the green tape weight ratio of a binder does to 1 or less and it forms the slurry, and especially, the weight ratio of the plasticizer about improves the moldability of a partition but it is desirable to sustain the range of 75 - 85 weight%. An additive improves easily hardened and a plasticizer has the flexibility in which the green tape is fixed. A solvent dissolves a binder and plasticizer improves the moldability of a partition but it is desirable to sustain the range of 5 - 10 weight%. A solvent Here, a binder binds the powder. Along with this it sustains a viscosity. And it prevents from the green tape being plasticizer. As to an additive, in order to prevent to unite of the powder the dispersing agent, a surfactant etc. are it is desirable to manufacture a partition with a superior thing in which the weight ratio of the plasticizer about the he moldability of a partition but it is desirable to sustain the range of 1 - 5 weight% 30

- Referring to Fig. 3, the procedure of the manufacturing method is illustrated in order to illustrate the composition of barrier rib for the high brightness plasma display panel. 31
- The green tape (Green Tape: 40) is formed. (Eleventh step) After the green tape (40) manufactures the slurry, by using organic compound with the glass powder to the composition ratio like showing up in the table 1, the slurry is formed. In and maintains the viscosity of the frit glass like a bar and the plasticizer, preventing the hardening of the slurry and has this case, the organic compound means the additive of the solvent, for dissolving the binder, showing up in the table 2 he tape casting apparatus, it has the predetermined thickness and it forms the slurry. At this time, by mixing the 32

the predetermined flexibility and binder and plasticizer and predetermined amount. In the meantime, in the composition improves the moldability of a partition but it is desirable to sustain the range of 1 - 5 weight%. Moreover, it is desirable binder does to 1 or less and it forms the slurry, and especially, the weight ratio of the plasticizer about the weight ratio A solvent improves the moldability of a partition but it is desirable to sustain the range of 75 - 85 weight%. An additive weight%. A plasticizer improves the moldability of a partition but it is desirable to sustain the range of 5 - 10 weight%. to manufacture a partition with a superior thing in which the weight ratio of the plasticizer about the weight ratio of a of a plasticizer maintains the range of 0.3 - 1. Is a moldability. The slurry is used as the tape casting dragon while ratio of the table 2, it improves the moldability of a partition but a binder is desirable to sustain the range of 3 - 7 maintaining the state of the liquid. The green tape (40) formed owing to the process is illustrated in (a) of Fig. 3.

- material of the substrate (42). Particularly, in case of the metal material, the titanium is mainly used. At this time, the casting apparatus (is not illustrated) and it attaches. The glass, glass-ceramic, ceramics, a metal etc is used as the The green tape (40) is laminated onto the substrate (42). (Twelveth step) It is laminated on the top of the substrate (42) which has the predetermined thickness (for example, 5mm) after separating the green tape (34) from the tape green tape (40) laminated on the top of the substrate (42) is illustrated in (b) of Fig. 3. 33
- (42) is injected in the printer (it is not illustrated) and an electrode is printed and it forms. At this time, the electrode (44) The electrode (44) is formed on the green tape (40). (Thirteenth step) The green tape (40) laminated on the substrate formed on the top of the green tape (40) is illustrated in (c) of Fig. 3. 34
- protection layer (46) for protecting an electrode on the top of the electrode (44) is formed. At this time, the electrode The electrode protection layer (46) is formed on the top of the electrode (44). (Fourteenth step) The electrode protection layer (46) formed on the top of the electrode (44) is illustrated in (d) of Fig. 3. 35
- After the mold (48) of the barrier morphology is positioned on the top of the substrate (42), the predetermined pressure morphology on the top of the substrate (42) is positioned, the predetermined pressure is added and the partition (50) is predetermined pressure is authorized by using a roller etc. At this time, the green tape (40) is moved with the pressure which this is applied in the molding process is prevented. Moreover, the composition of barrier rib forms the partition in applied in the mold (48) to the barrier wall forming groove (48a) and it is shaped to the shape of a partition. In fact, the deformation of a substrate generated around the pressure in which the pressure of 70kgf / ani is applied in the molding process, and it reduces the pressure of 30% whereas it molds by using the conventional composition of barrier rib and molding is illustrated a partition in (e) of Fig. 3. Moreover, the partition (50) in which a molding is finished is plasticized in the predetermined temperature. At this time, the partition (50) formed owing to the plasticity is illustrated in (f) of Fig. As a result, the composition of barrier rib for the high brightness plasma display panel authorizes the low pressure which a moldability is excellent and having the high fineness, and the high aspect ratio. At this time, the process of is added and the partition (50) is formed. (Fifteenth step) After the mold (48) having the groove (48a) of the barrier molded in the green tape (40). In this case, it has the mold (48) and substrate (42) interval the press, or the 36

and it forms a partition and it prevents the deformation of a substrate and it improves the performance of PDP. The composition of barrier rib for the high brightness plasma display panel has the advantage that it makes have high esolution. The partition having the high aspect ratio (High-Ratio) can be formed

* Effects of the Invention

- As described above, the composition of barrier rib for the high brightness plasma display panel has the advantage that preventing the deformation of a substrate. Along with this the partition having the high fineness, and the high aspect the performance of PDP is improved since the low pressure being authorized and a partition being formed and ratio (High-Ratio) can be formed. 37
- person skilled in the art instant noodle the present invention that a change and the various correction are possible. Therefore, the technical scope of the present invention is not restricted to the content that is written in the detailed As illustrated in the above, it will be able to know at the range that does not deviate from the technical spirit of the description of a specification but it determines by the range of the patent claim. 38

Scope of Claims

Claim[1]:

The composition of barrier rib for the high brightness plasma display panel of the composition of barrier rib which binds plasticizer, in which the green tape prevents a hardening and having the flexibility in which the green tape is fixed and binder and plasticizer a plasticizer and the additive which prevents to unite of the bonding agent powder, wherein the the glass powder and glass powder; and contains the solvent, dissolving the binder, sustaining a viscosity and the mass rate of the plasticizer about the weight of a binder is 1 or less. 33

Claim[2]:

The composition of barrier rib for the high brightness plasma display panel of claim 1, wherein the mass rate of the plasticizer about the weight of a binder is 1 through 0.3. 4

Claim[3]:

- 43 The composition of barrier rib as to claim 1.
- weight% through the solvent of 90 weight% through the plasticizer of 30 weight% through the binder of 30 weight% The composition of barrier rib for the high brightness plasma display panel wherein contains the additive of 10 through 0.5 and 1 and 50 and 0.1. 45

Claim[4]:

The composition of barrier rib for the high brightness plasma display panel of claim 3, wherein a binder is 7 weight% 46

through 3.

Claim[5]:

The composition of barrier rib for the high brightness plasma display panel of claim 3, wherein a plasticizer is 10 weight% through 5. 48

Claim[6]:

The composition of barrier rib for the high brightness plasma display panel of claim 3, wherein a solvent is 85 weight% through 75. 20

Claim[7]:

The composition of barrier rib for the high brightness plasma display panel of claim 3, wherein an additive is 5 weight% through 1. 52